

Ancient Fires and Indigenous Knowledge Inform Fire Policies

Global Paleofire Working Group 2: Diverse Knowledge Systems for Fire Policy and Biodiversity Conservation; Egham, United Kingdom, 4–9 September 2018



Vegetation grows back after a fire in the heathlands of Chobham Common, Surrey, the largest natural reserve of lowland heath in the southeast of England. Participants at a workshop last September learned about the challenges of fire management and conservation strategies during a field trip to this area. Credit: Alice Milner

By Carole Adolf, Donna Hawthorne, and Daniele Colombaroli © 22 March 2019

Climate change, population shifts, and changes in land use all have affected the ways that local citizens, policy makers, and other stakeholders deal with wildfires and their effects on biodiversity. Scientists who study ancient ecologies can offer a wealth of information on this topic, enriched by knowledge provided by traditional and indigenous societies. To make good use of this knowledge, however, it must be communicated clearly and convincingly to the stakeholders responsible for putting the knowledge into practice.

This workshop introduced a novel approach, the combination of paleoecology-based knowledge integrated with traditional and indigenous knowledge. To discuss the best way to integrate the knowledge of scientists, experts, policy makers, and stakeholders into effective policy planning, the Global Paleofire Working Group 2 (GPWG2), which focuses on the long-term interactions of fire and the environment, organized a [weeklong workshop](http://www.pastglobalchanges.org/calendar/2018/127-pages/1756-gpwg2-meet-egham-18) (<http://www.pastglobalchanges.org/calendar/2018/127-pages/1756-gpwg2-meet-egham-18>) last September, gathering 30 participants from 15 countries at Royal Holloway, University of London. The aim of the workshop was to discuss the challenges regarding [fire policy](https://eos.org/articles/communities-of-color-are-more-vulnerable-to-wildfires) (<https://eos.org/articles/communities-of-color-are-more-vulnerable-to-wildfires>) and biodiversity conservation while integrating expertise from paleoecology, indigenous and traditional knowledge, stakeholders, and policy makers (the [Diverse-K framework](https://doi.org/10.22498/pages.26.2.89) (<https://doi.org/10.22498/pages.26.2.89>)) for policy development.

This workshop introduced a novel approach, the combination of [paleoecology](https://eos.org/meeting-reports/how-paleofire-research-can-better-inform-ecosystem-management) (<https://eos.org/meeting-reports/how-paleofire-research-can-better-inform-ecosystem-management>)-based knowledge integrated with traditional and indigenous knowledge. These sources of knowledge complement each other by providing long time series derived from paleorecords with detailed information having great temporal and taxonomic resolution from traditional and indigenous knowledge.

All participants gathered to write a policy brief aimed at answering four priority questions that policy makers had identified prior to the workshop. Workshop participants focused on effective and transferable communication and evidence synthesis methods to make the available scientific evidence more readily available to stakeholders and policy makers. For this purpose, all participants gathered to write a policy brief aimed at answering four priority questions that policy makers from Natural England and the U.K. Department for Environment, Food and Rural Affairs (DEFRA) had identified prior to the workshop.

These questions covered such issues as the effects of changing climate and land use on fire regimes, different severities of fires and ecosystem recovery, ideal fire regimes to achieve [biodiversity conservation](https://eos.org/articles/panama-study-tallest-tropical-trees-died-mostly-from-lightning) (<https://eos.org/articles/panama-study-tallest-tropical-trees-died-mostly-from-lightning>) management objectives, and impacts of prescribed burning and other land management practices on wildfires.

The early-career researchers present at the workshop focused on summarizing evidence relating to one of those key challenges, put forward by Natural England and DEFRA. To do this, they applied the [systematic review method](https://www.roses-reporting.com) (<https://www.roses-reporting.com>)—an approach that evidence synthesis experts presented to all workshop participants during one of the keynote talks—to assess the effects of changing climate and land use practices on fire regimes from a paleoperspective and indigenous-traditional knowledge perspective.

The aim of this systematic review was to summarize all the available evidence on this topic in a way that is reproducible and reduces bias. To achieve this, the early-career researchers focused on outlining a systematic review protocol, which describes the literature search strategy for the review, as well as criteria for article screening and exclusion, among others. More particularly, these researchers discussed which temporal and spatial scales and which proxies to include in the review, as well as whether chronology quality should be an exclusion criterion.

Finally, experts from the Surrey Wildlife Trust guided the workshop participants through in-the-field challenges of fire management and conservation strategies during an excursion to Chobham Common (see photo), the largest natural reserve of lowland heath in the southeast of England. All in all, the workshop advanced the Diverse-K framework as an inclusive approach to ease the integration of relevant evidence into policy.

—Carole Adolf (carole.adolf@zoo.ox.ac.uk (<mailto:carole.adolf@zoo.ox.ac.uk>)), Oxford Long-Term Ecology Laboratory, Department of Zoology, University of Oxford, U.K.; Donna Hawthorne, School of Geography and Sustainable Development, University of St. Andrews, U.K.; and Daniele Colombaroli, Centre for Quaternary Research, Department of Geography, Royal Holloway, University of London, U.K.

Citation: Adolf, C., D. Hawthorne, and D. Colombaroli (2019), Ancient fires and indigenous knowledge inform fire policies, *Eos*, 100, <https://doi.org/10.1029/2019EO118871>. Published on 22 March 2019.

Text © 2019. The authors. [CC BY-NC-ND 3.0](https://creativecommons.org/licenses/by-nc-nd/3.0/)

Except where otherwise noted, images are subject to copyright. Any reuse without express permission from the copyright owner is prohibited.